Sub A4

CLAIMS

1. A method of establishing the tandem free operation mode for a mobile station to mobile station and cell to cell call in a cellular mobile telephone system, which method includes a step of selecting a common coding mode for each mobile station and the selection of a common coding mode takes account of the traffic load in at least one cell.

2. A method according to claim 1, wherein said common coding mode is selected on the basis of lists of coding modes supported by each mobile station and if the corresponding mobile station is in a busy cell the list of supported coding modes is shortened to eliminate therefrom the coding modes that consume the most resources.

3. A method according to claim 2, wherein a common coding mode is selected on the basis of non-shortened lists of supported coding modes if no common coding mode can be selected on the basis of lists of supported coding modes at least one of which is a shortened list.

4. A method according to claim 3, wherein the criterion for selecting a common coding mode on the basis of lists of coding modes supported by each mobile station is a quality optimization criterion.

5. A method according to claim 2, wherein common coding modes for each mobile station are initially selected independently of each other and a list of supported coding modes is shortened only if the coding mode initially selected for the corresponding mobile station is additionally one of the coding modes consuming the least resources.

6. A method according to claim 2, wherein coding modes

for each mobile station are initially selected independently of each other, the method further determines if the coding modes initially selected for each mobile station are identical, and:

- if they are identical, the corresponding coding mode constitutes said common coding mode, or
- if they are not identical, said common coding mode is selected on the basis of said lists of supported coding modes for each mobile station.

7. A method according to claim 2, including at least one step during which an entity of said system handling the call for each mobile station communicates a list of supported coding modes for that mobile station to a like entity handling the call for the other mobile station and a subsequent step during which each entity selects a common coding mode on the basis of lists of supported coding modes for each mobile station and as a function of the same criterion.

8. A method according to claim 6, including at least one step during which an entity of said system handling the call for each mobile station communicates a list of supported coding modes for that mobile station to a like entity handling the call for the other mobile station and a subsequent step during which each entity selects a common coding mode on the basis of lists of supported coding modes for each mobile station and as a function of the same criterion, and determines if the coding modes initially selected for each mobile station are identical.

9. A method according to claim 1, wherein said system is GSM.

10. A method according to claim 1, wherein one of said coding modes consuming the least resources is half-rate mode.

11. A method according to claim 1, wherein one of said coding modes consuming the most resources is full-rate mode.

12. A method according to claim 1, wherein one of said coding modes consuming the most resources is enhanced full-rate mode.

13. A cellular mobile telephone system for implementing a method according to claim 1, the system including, for establishing the tandem free operation mode for a mobile station to mobile station and cell to cell call, means for selecting a common coding mode for each mobile station taking account of the traffic load in at least one cell.

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